

SUBHAM SHOME

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RESEARCH INTEREST

Computer Vision, Image Processing, Image Reconstruction, Astroinformatics, Applied Mathematics, Deep Learning

EDUCATION

Pazmany Peter Catholic University (PPCU), Budapest, Hungary Expected Aug 2024

Autonomous University of Madrid (UAM), Madrid, Spain

University of Bordeaux (UBx), Bordeaux, France

Master of Science in Image Processing and Computer Vision (IPCV), Current Grade: 4.17/5

Amity University Kolkata, India

Aug 2015 - May 2019

Bachelor of Technology in Electronics and Communication Engineering, Grade: 9.26/10

RESEARCH PROJECTS

Multi-class Classification on Sloan Digital Sky Survey (SDSS) DR14 data Aug 2023

- Executed a comparative analysis of various machine learning classification models on the SDSS DR14 dataset for the multi-class classification of galaxies, stars, and quasars, leveraging spectroscopic and photometric data.
- Attained accuracy levels of 99.4% and 99.1% utilizing ensemble learning techniques, namely XGBoost and Random Forest respectively.

Deepfake Detection May 2023

- Accomplished image forgery detection using statistical machine learning algorithms including SVMs, combined with texture analysis using image processing techniques, attaining accuracy rates of 97% on UADFV dataset.
- Utilized transfer learning for improved outcomes, resulting in a 96% accuracy and enhanced AUC curve during inter-database analysis on the Celeb-DF dataset.

Detection of lesions in retinal fundus images (*BTech Thesis*) May 2019

- Developed an algorithm that segmented out the Optic Disc from fundus images, and then performed deep learning using CNN to detect lesions like glaucoma.
- Achieved 94% and 89% accuracy for optic disc segmentation on IDRiD and DRISHTI-GS datasets respectively, and 88% accuracy for detection on IDRiD dataset.

SKILLS AND EXPERTISE

Languages Python, Matlab, C++, C, SQL

Libraries Tensorflow, Keras, OpenCV, Scikit-learn, Pytorch, Scikit-image, Numpy, Pandas, Matplotlib

Tools Git, L^AT_EX

HONOURS AND AWARDS

- **Sponsorship - Synapse AI Symposium** Jun 2023
Selected among Synapse AI Symposium's top 50 candidates at Milan, alongside global AI luminaries.
- **Winner - Cybathlon 2024** Apr 2023
Secured Cybathlon 2023-24's Vision Assistance Challenge victory among 21 global teams at ETH Zurich.
- **Erasmus+ Grant** Jan 2023
Chosen along with 9 applicants to receive the prestigious Erasmus+ Grant as funding for studies in Europe.
- **IPCV Excellence Scholarship - 100%** Apr 2022
Granted full IPCV scholarship as one of only 3 non-EU citizens selected from more than 1000 applicants.
- **Silver Medalist in Academics, BTech** Oct 2019
Earned Silver Medal for B. Tech ECE with 9.26/10 GPA across 4 years.

PROFESSIONAL EXPERIENCE

Deep Learning Intern

Jan 2023 - Mar 2023

Indian Statistical Institute

Kolkata, India

- Designed, trained, and assessed advanced models using TensorFlow and PyTorch, particularly focusing on Convolutional Neural Networks (CNNs).
- Applied gained expertise to more than 3 projects, showcasing hands-on experience in deep learning techniques, with a specific emphasis on CNNs.

Software Developer

Jun 2019 - Aug 2022

Tata Consultancy Services Ltd (TCS)

Kolkata, India

- Drove a 20% automation of Walmart's monitoring system, amplifying weekly team efficiency by over 30%.
- Designed and implemented 5% of the UI for Walmart Academy using React JS, and curbed bugs by 15% in 6 months within the ASDA.com production framework.

Image Processing and Machine Learning Intern

May 2018 - Jul 2018

Indian Statistical Institute

Kolkata, India

- Mastered the foundational mathematical concepts underpinning a range of statistical machine learning models like Support Vector Machines (SVMs), Random Forests, and Logistic Regression. Became proficient in various image processing techniques encompassing filtering, segmentation, and transforms.
- Initiated the development of an automated system for detecting eye diseases from retinal fundus images, achieving an 86% accuracy, a project that subsequently formed the basis of bachelor's thesis.

CERTIFICATIONS

- **Deep Learning: From perceptrons to diffusion models** Mar 2023
Indian Statistical Institute, Kolkata
- **Mathematics for Machine Learning** May 2022
Imperial College of London
- **Computer Vision, Graphics and Image Processing** May 2018
Indian Statistical Institute, Kolkata